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ABSTRACT

Treatment strategies for modifying peer relations of hyperactive children are described within the context of recent research on the components of social status in children. This information, though not as yet specifically identified for hyperactive children, is presented as offering the best chance of establishing maximally effective treatment strategies. A treatment package currently in the pilot stage of development with three children demonstrates one way of integrating multidimensional treatment and assessment strategies. (Author)

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Behavioral Strategies for Improving Peer Relations in Hyperactive Children

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Abstract

Treatment strategies for modifying peer relations of hyperactive children are described within the context of recent research on the components of social status in children. This information, though not as yet specifically identified for hyperactive children, is presented as offering the best chance of establishing maximally effective treatment strategies. A treatment package currently in the pilot stage of development is described to demonstrate one way of integrating multi-dimensional treatment and assessment strategies.

Behavioral Strategies for Improving Peer Relations in Hyperactive Children

The purpose of this paper is to provide an overview of treatment strategies for modifying peer problems of hyperactive children. First the nature and topography of peer relationships will be described briefly and specific treatments will be indicated. Then a program package will be presented to provide an indication of ways of integrating multi-dimensional treatment strategies.

Until recently peer relationships had been neither directly assessed nor emphasized in the standard intervention for hyperactivity, although information concerning the behavioral correlates of social status is well documented (Milich & Landau, in press). For example, it appears that a child's classroom behavior is directly related to social status (Gottman, Gonso, & Rasmussen, 1975). Off-task behaviors, disruptive behaviors, negative attention from the teacher and poor academic performance have all been shown to correlate with negative peer nominations. Social status has also been found to be positively correlated with the frequency of positive reinforcement given by the child to peers (Hartup, Glazer, & Charlesworth, 1967) and negatively correlated with disruptive, immature and unprovoked aggressive acts (Patterson & Reid, 1970). This information is especially important given that peer relations are considered the single best predictor of future adult adjustment (Cowen, Pederson, Babigian, Izzo, & Trost, 1973; Robins, 1979).

Even in the absence of aggressive behaviors children labelled hyperactive may have an "interpersonal style" that leads to peer rejection, as it has been observed that either high levels of hyperactivity or high levels of aggression, or both, is likely to lead to negative ratings by peers (Pelham & Bender, in press). Therefore observational systems or descriptive sociometric devices designed to measure or predict peer perceptions would need to include some behaviors which reflect the impulsive, immature or simply the high frequencey behaviors of nonaggressive, highly hyperactive children. Maximally effective treatment strategies will evolve directly from these assessment efforts (Hops & Greenwood, 1981). However, pending advances in assessment techniques, the treatment of peer problems in hyperactive children will need to involve a wide variety of treatment strategies.

To begin with, we should expect such treatment to be intensive and long-term. This goes somewhat against the grain of current practice in behavior therapy. Citing increased maintenance of treatment, behavioral practitioners historically have called for minimally intrusive and easily implemented procedures. However this cannot be accomplished without some loss of effectiveness. Specifically, simpler interventions are not as powerful as the early, unashamedly direct laboratory and treatment studies from which they arose (e.g., Patterson, 1965). Newer and less potent techniques, though appropriate for many problems, have been insufficient to produce maximum changes in hyperactive children's behavior. Similarly, while many types of child behavior

problems can be managed on a relatively short-term basis with simple contingency procedures, peer problems of hyperactive children do not appear to fit this category. Hersen's recent reminder that "complex problems require complex solutions" (Hersen, 1981) examined with respect to work in depression, alcoholism and schizophrenia, could have easily been applied to hyperactivity.

An intensive contingency management program designed to modify peer relations of hyperactive children should include some or all of the components described below: 1) First a daily report system could be established which would target behaviors specific to the child's classroom problems. The teacher would rate the child several times a day on the occurrence of these target behaviors. For example, one such behavior included for hyperactive children might be "Got along well with peers". The child would need to obtain a certain percentage of favorable responses to earn a reward; 2) Parent and teacher training should be provided to ensure that the programs are carried out appropriately; 3) Highly motivating back-up rewards for the report system should be set up at home and/or school since the rewards are essentially the backbone of the program; 4) A response cost system may also be used to aid in controlling a highly salient target behavior; 5) A time-out procedure may be necessary to control for escalating or recurrent problem behaviors which are unresponsive to reward; 6) Self-monitoring and group contingencies could be used along with the daily report which may serve to highlight the impact of the reward. Group contingencies have been shown to be very effective in re-

ducing a target child's disruptive behavior (cf. Rosenbaum, O'Leary & Jacob, 1975). They might also have the additional advantage of directing the attention of peers toward the target child's appropriate behavior; 7) Stimulant medication used concurrently with a contingency management program may facilitate improvement in the early stages of treatment. Medication alone, however, has not been shown to produce behavior changes which extend beyond the period in which the child receives the drug (Pelham & Bender, in press); 8) Finally, tutoring may be necessary to improve the child's academic performance. This is usually not an area of concern for behavioral practitioners since most often the school has already arranged for tutoring. However, since, as stated previously, academic performance may be correlated with social status, it should not be overlooked.

To modify the hyperactive child's "interpersonal style" an individualized social skills training program could be designed. This effort is hampered somewhat by our lack of information on the specific behavioral correlates of social status with hyperactive children. Traditionally social skills training programs have been designed for withdrawn and isolated children and typically treatment involves some or all of the following: 1) self-expressive skills; 2) assertive skills; 3) other-enhancing skills; 4) communication skills; and 5) ability to dispense social reenforcers (Van Hasselt, Hersen, Whitehill & Bellack, 1979). For example, Oden & Asher (1977) instructed the children participating in their program to make a game "fun or enjoyable to play with

another person". Training involved: 1) participating in a game or activity (e.g., getting started, paying attention); 2) cooperating (e.g., taking turns and sharing materials); 3) communicating (e.g., talking and listening); and 4) validating or supporting (e.g., giving attention or help), which they call being "fun, friendly and nice". Recently Kirschenbaum (1980) has reported on the development of a large scale program to train inner-city primary grade children, including aggressive children, demonstrating social skills deficits. The program consists of "structured group therapy" which involves groups discussions, group activities and individual activites all designed to improve specific social abilities. This appears to be similar to the types of social skills training programs just described. In addition, however, parent and teacher consultation is provided and topics covered include classroom management and compliance training using behavioral principles. Parent and teacher training may serve to provide the child with an incentive system for displaying appropriate social skills, assuming they learn to provide the incentives contingent on appropriate child behavior. In a laboratory study, Pelham, O'Bryan & Paluchowski (Note 1) found that a reward system along with social skills training produced changes greater than either treatment alone, though measures were not taken in the child's natural environment and so generalization cannot be assumed. Thus, whereas withdrawn and isolated children have been helped with skills training alone, this has not been so with hyperactive children. It would seem that just knowing what to do is not suf-

ficient for these children. However, once their disruptive behaviors are brought under control, social skills training paired with an incentive system might be effective in providing them with some finesse in interpersonal relations. In designing these programs, the practitioner should heed the advice of Bornstein, Bellack & Hersen (1979), who stress the importance of "individualized assessment and treatment strategies". Though all four children in that study responded positively to treatment, their responses were highly variable and idiosyncratic.

When sociometric devices have been used as dependent measures of contingency management programs, the results have not been encouraging. Pelham and colleagues found little change on peer ratings of target children though their behavioral program was successful as measured by direct observation and teacher report (Pelham, Schnedler, Miller, Nelsson, Paluchowski, Ronnei, Budrow, Marks, & Bender, Note 2). The positive changes that did occur fell short of a maximally effective treatment. The children were still one and one-half standard deviations from the class mean on the sociometric measures. Even worse, social skills training alone proved no more effective than a no-treatment control as measured by peer positive and negative ratings. In fact, the group given social skills training alone actually showed a small <u>increase</u> in negative peer nominations. However when children received social skills training concurrent with a contingency management program, again the largest positive change was seen. However, the effect was still short of a sufficient treatment.

The reasons for this appear to be two-fold. First, as stated previously, since social skills training programs are designed for withdrawn or isolated children, modifications in the programs are needed to tailor treatment to the needs of hyperactive children. With the development of descriptive sociometric devices such as the Pupil Evaluation Inventory (Pekarik, Prinz, Liebert, Weintraub, & Neale, 1976), this information should be forthcoming. Secondly, behavioral management programs have traditionally been reliant upon teacher reports as measures of change, and behavioral observation systems have been designed to accomodate such change. However, as Milich and Landau (in press) point out, one teacher rating will not be as valid as 30 children's pooled ratings, accounting in part for the lack of agreement between teachers and children on measures of social status. In addition, with the emphasis upon peer relations, it is the children who are now the primary evaluators of change. Perhaps the use of sociometrics as dependent measures for contingency management programs will suggest changes in emphasis in accordance with peer perceptions. Observational systems and treatment strategies could then be designed to reflect more accurately those behaviors identified by peers as related to social skills.

A caution appears necessary at this point. It is perhaps tempting to treat first and assess second in order to maximize treatment effects. However more is not necessarily synonomous with better, since a "kitchen sink" approach, aside from being expensive and inefficient, is also likely to be ineffective with-

out appropriate assessment tools. A positive outcome will demand individualizing the training program, which in turn necessitates obtaining pertinent information about the individual. Nowhere is it more true that measurement is essential for treatment.

A treatment package will now be described to indicate one way of integrating the varied strategies described previously. The program is in the pilot stage of development and further revisions are no doubt awaiting.

Our program is presently in use with three hyperactive children, two in the second grade and one third grader. The main dependent measure is a sociogram that was administered to the classes of these children prior to treatment. The Pupil Evaluation Inventory was used because it appears to be a reliable and valid instrument, and normative and psychometric data have been reported (Pekarik, et. al., 1976). The PEI is a 35-item peer nomination inventory, developed by the Stony Brook High Risk Project to study peer relationships in children at risk for the development of schizophrenia. When factor analyzed it produces scores on aggression, withdrawal and likeability. In general, children were considered appropriate for treatment if they scored greater than or equal to two standard deviations above the mean on aggression and two or more standard deviations below the mean on likeability.

Treatment began with the development of a daily report card for each child. A therapist met with each child's teachers and developed a list of problem behaviors from which the target be-

haviors for the daily report evolved. As suggested previously, "Got along well with peers" was a target behavior for each child. The child needed to obtain 75% appropriate evaluations from the teachers to earn a reward. For each child the school-based reward consisted of a playgroup at the end of the day. The playgroups lasted approximately twenty minutes and were managed by undergraduate psychology students. Actually the word "group" is used here loosely. The playgroups consisted of two, and sometimes three children; the target child and usually one peer he chose daily. For two of the children an additional peer was included on days that the target child received 90% or above appropriate ratings from his teachers. In addition to the playgroups, back-up rewards for the daily reports were instituted at home to insure parent participation. These rewards usually consisted of special time with a parent or the opportunity to engage in a favorite activity (e.g., bicycle riding). The therapist met weekly with the teachers to monitor the program. Parent training also involved weekly meetings in which child management issues were discussed with the therapist and treatment in the home designed accordingly.

Once the daily report card was established, a response cost system was implemented on a highly salient behavior (off-task and out of seat) for two of the children. The system used was developed by Rapport, Murphy and Bailey (1980). It involves the use of two wooden stands with numbered cards attached to each. One larger stand is placed on the teacher's desk and a smaller version placed on the child's desk. At a predetermined time, when the

teacher observes the child engaging in the target behavior, she flips a card down and one minute of the child's playgroup time is lost that day. The child is told to match his apparatus card accordingly. Variations on this can be used. For instance, loss of three points or less could enable the child to choose a second peer for that day's playgroup.

A classroom time-out procedure did not prove necessary for the three children we treated this past year. When a time-out program is used, however, usually contingent on aggressive behavior, we have found the simple procedures most widely employed to be ineffective with most hyperactive children. The time-out program we use (Pelham, Schnedler & Bender, Note 3) involves a hierarchy of time-outs which increase in duration as the child fails to comply. When the child exhibits the behavior that is to result in punishment (e.g., hitting), he is sent to time-out, usually to a chair in the hallway or in some part of the classroom that provides a minimum of stimulation. If the child immediately complies, however, he earns "time off for good behavior" and might stay in time-out for only five minutes. Failure to comply immediately would result in a doubling of the time to thirty minutes, but again the child begins earning time off as soon as he complies, and the minimum time-out would be ten minutes. When used in a school setting, repeated failure to comply results in the child being sent to the principal's office and, if still not compliant, the child is sent home. There he is confined to his room (minus t.v., etc.) for the remainder of the day. It should be noted that

time-out programs such as this are often resisted by school personnel and parents who may view it as complicated and disruptive. However, while such programs may not be desirable, they are sometimes necessary in dealing with hyperactive children.

From the perspective of peer relations, the playgroups appear to have multiple advantages. Since they are powerful motivators for the target child, they thereby allow for the success of the other components. Without a suitable reinforcer, the report card and response cost systems are merely idle threats. But, just as importantly, the playgroups provide a supervised playtime during which the children can be observed interacting with their peers. To the extent that the groups are enjoyable they also provide a positive experience with peers, which itself has been suggested as a treatment strategy (Hops & Greenwood, 1981). And since the target child is required to choose a different peer each day, to insure that the playgroups impact on the whole class, the playgroups may be seen to involve a group contingency which may enhance the impact of treatment as the child's peers provide support and encouragement during the day for the target child to earn the playgroup. A final benefit may be that peer perceptions of the target child may improve, both because the peer is made aware of improvements in daily behaviors and because the target child may choose that peer to participate in the playgroup.

The initial data from the three children studied are disappointing as to the effect of the present strategy on peer perceptions of the target children. Table 1 describes the results

of pre- and post-administration of the PEI, with six months separating the two testings.

Insert Table 1 about here

The changes noted for Sam appear substantial. He received 42% fewer aggression ratings and 55% more likeability ratings on post-test as compared to class differences of 9% and 8% respectively. David and Charles, however, fared less well. David showed a slight decrease in aggression ratings but not as great as the class as a whole and still more than three-and-one-half standard deviations from the class mean. Likeability ratings decreased by 41%, still more than one standard deviation from the class mean. Charles' mean scores were worse overall on the post-test but still within the same standard deviation from the class mean for aggression and withdrawal and slightly less for likeability.

Anecdotally, both of Sam's teachers indicated improvement in his classroom behavior at the year's end and David's teacher indicated no change in his behavior--observations which correlate well with the sociograms. In contrast, Charles' teacher rated him as much improved, a feeling obviously not shared by his peers.

Two possible explanations for these results are apparent. First, both David and Charles began treatment with extreme scores on aggression, whereas Sam's aggression ratings were not as severe. Perhaps such extreme scores require longer treatment programs. Also, the fact that treatment began in February for all

three children might have worked against changing peer perceptions of extreme behavior. If, by mid-year, peer perceptions are set for highly aggressive children then peers may not be likely to reevaluate a child's behavior even if it improves dramatically.

A second possible interpretation is that Sam's improvement was related to a medication assessment that he was undergoing during the last few weeks of school rather than the behavioral intervention alone. In a placebo-controlled, double-blind assessment he received three weeks worth of psychostimulant medication--one week of methylphenidate (6.5 mg) and two weeks of pemoline (37.5 mg). On shortened versions of the PEI that his male classmates completed weekly, Sam was rated as substantially less aggressive during pemoline weeks than during placebo weeks. Indeed, Pelham and Bender (in press) reported results demonstrating that pemoline decreases observed playground aggression and increases observed positive interactions in aggressive, hyperactive children. It is not unlikely that a low dosage of pemoline in combination with a behavioral intervention that focuses on peer interactions might provide a maximally effective treatment for some children.

As a preliminary test of such an intervention, we measured the observed peer interactions using the RECESS code (Walker, Street, Garrett, Crossen, Hops & Greenwood, 1981) of two children participating in a summer treatment program for hyperactive children. The children were with a group of eight hyperactive children and three counselors, and a highly structured point system that rewarded pro-social behavior and punished anti-social

behavior was in effect. Because the point system was only moderately effective with the two children, a double-blind, placebo-controlled evaluation of pemoline was conducted. The results showed that one child was unaffected by pemoline. The other, however, showed marked improvement during the week when he received pemoline. This latter child's positive interactions with peers increased from 15% of intervals observed on placebo to 72% on 37.5 mg pemoline, and the percentage of intervals during which he was timed out for aggressive behavior directed towards peers decreased from 44% on placebo to 5% on pemoline. It is interesting to note that the children's counselor (blind to medication condition) reported that the first child was improved on pemoline and the second was unchanged--impressions that contradict the observational data. These results are consistent with our other findings that on teacher ratings and observations of on-task behaviors an intervention that combines behavior therapy and low dosages of psychostimulant medication apparently results in maximal short-term improvement with hyperactive children (Pelham, Schnedler, Bologna & Contreras, 1980; Pelham, et. al., Note 2). Whether this will also be the case with combinations of medication and behavior therapy on peer relationships requires additional study.

Though, ultimately, the success of these programs will be determined by changes in peer ratings on the class sociograms, it is not clear whether even intense interventions over a period of a few months can produce durable changes in peer perceptions. Thus,

we plan to continue treatment through the coming year for these children. This will allow long-term assessment of treatment gains as well as continued management of the programs to account for changes in classroom and reinforcement needs, and in the developmental level of the child (cf. Furman, 1980).

Two final points appear worthy of emphasis. First, to be certain that treatment is affecting all important aspects of the child's life, the use of multiple measures, though burdensome, appears essential (Furman, 1980; Milich & Landau, in press). In three of the five cases we described, the significant adult's evaluation of change was not consistent with the peer evaluations or observations of peer interactions, a finding we have reported previously (Pelham & Bender, in press). In particular, sociograms, behavioral observations and parent and teacher ratings all offer important and often nonoverlapping information. And finally, expectations for the nature and duration of treatment need to be brought in line with the reality of the extent of hyperactive children's peer problems. It would appear that treatment programs need to be long-term, extensive in the situations and behavioral domains included, and powerful. With this population and problem, maximal treatment <u>effects</u> appear to require maximal treatment <u>efforts</u>.

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Table 1

Pre-post Sociometric Ratings on the Factors from the Pupil Evaluation Inventory for Three Target Children

	Class $\bar{X}$		Child $\bar{X}$		Z-Score		Pre Post Difference*	
	Pre	Post	Pre	Post	Pre	Post	Class	Child
Sam								
Aggression	10.6	9.6	30.9	18.0	1.9	1.1	-9%	-42%
Withdrawal	8.9	5.8	16.7	11.1	2.2	1.4	-35%	-34%
Likeability	23.0	25.0	8.9	20.0	-1.2	-0.5	+8%	+55%
David								
Aggression	16.3	12.1	60.8	52.5	4.1	3.6	-26%	-14%
Withdrawal	16.6	12.1	33.3	20.4	2.4	1.2	-27%	-39%
Likeability	31.8	21.9	25.6	15.0	-0.7	-0.7	-31%	-41%
Charles								
Aggression	10.3	11.3	60.3	72.8	4.1	4.0	+10%	+21%
Withdrawal	6.4	5.2	15.9	18.4	2.6	2.8	-23%	+16%
Likeability	23.1	14.5	10.0	7.0	-1.3	-0.8	-37%	-30%

*This difference was computed by subtacting the postscore from the prescore and dividing the result by the prescore.